

INFORMATION SHEET

ORDER NO. _____

AERA ENERGY LLC

ROW 4 / LOST HILLS WASTEWATER DISPOSAL FACILITY

SOUTH BELRIDGE OIL FIELD

KERN COUNTY

Aera Energy LLC (hereafter Discharger) owns and operates the Row 4 / Lost Hills wastewater disposal facility in the South Belridge Oil Field. The facility consists of 107 surface impoundments that receive oil field produced water from the Dehydration 20 Plant and Dehydration 27 Plant, backwash water from treatment filters at the Water Plant 27, and softener regeneration wastewater from ion exchange units at the Water Plant 27. The impoundments, which have a surface area of approximately 250 acres, are used for the disposal of wastewater by evaporation and percolation. Approximately 33,885,000 barrels of wastewater were discharged to the impoundments during the 12 months ending in June 2005. The impoundments are unlined and do not meet the prescriptive construction criteria for surface impoundments as specified in Title 27. The wastewater disposal operation is currently regulated by Waste Discharge Requirements (WDRs), Resolution No. 58-193. The WDRs are outdated and are being updated to reflect Basin Plan policy and current State regulations. Resolution No. 58-193 is superseded by this Order. Resolution No. 58-193 cannot be rescinded because it continues to regulate two additional wastewater disposal facilities in the South Belridge Oil Field that are owned and operated by the Discharger.

The facility lies on Quaternary age lithologic units, which include the Alluvium and the Tulare Formation. Alluvium contains sand, silty sand, silt, and clay beds. At the base of the Alluvium is a sand bed known as the 22K Sand and an underlying silt and clay bed known as the Corcoran Clay Equivalent (CCE). The CCE is the lateral equivalent of the Corcoran Clay. The Tulare Formation is comprised of interbedded clay, silt, and sand.

The Discharger has conducted an investigation to determine the hydrogeology and lateral and vertical extent of wastewater migration in the subsurface. The Discharger or predecessor companies have installed 67 groundwater monitoring wells to the east of the South Belridge Oil Field. Three stratigraphic intervals have been identified by the Discharger as aquifer zones containing water-bearing layers. The shallowest aquifer is designated as the unconfined Aquifer I, which consists of discontinuous water-bearing sands separated by clays. Below a discontinuous clay aquitard at the base of Aquifer I is the 22K Sand, which is water-bearing and is designated as the semi-confined 22K Aquifer. Underlying the 22K Aquifer, is the CCE. Unconformably underlying the CCE are water-bearing zones in the Tulare Formation collectively designated as the confined Aquifer II.

Groundwater in Aquifer I is impacted by wastewater migrating from the impoundments for at least 0.5 miles downgradient to the east in monitoring well 25G1. Groundwater in the 22K Aquifer is impacted by wastewater migrating from the impoundments for at least 1.5 miles downgradient to monitoring well MW-1A and to the north-northeast for at least 2.7 miles downgradient to monitoring well 7N2. Groundwater in Aquifer II is not impacted by wastewater from the impoundments in monitoring wells 13E5, 24P3, and MW-3.

The Discharger has not delineated the lateral extent of groundwater impacted by wastewater migrating from the impoundments. In accordance with the time schedule contained in the Order, the Discharger must complete an investigation to determine the lateral extent of wastewater impacts on groundwater in

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Aquifer I and the 22K Aquifer; and, after completion of the investigation, submit a plan to implement a Corrective Action Program in accordance with Title 27.

The beneficial uses of groundwater in the area are designated by the Basin Plan as municipal and domestic supply, agricultural supply, and industrial service supply. There are no municipal or domestic supply wells in the area.

Wastewater in the impoundments is sampled and analyzed by the Discharger each quarter and the results reported semi-annually. The Discharger collected wastewater samples from the inlet impoundment, a middle impoundment, and the terminal impoundment during May 2005. The samples had the following salinity concentration ranges: EC, 34,000 - 46,000 $\mu\text{mhos/cm}$; TDS, 24,000 - 27,000 mg/L; chloride, 13,000 - 15,000 mg/L; and boron, 79 - 99 mg/L. The wastewater is classified as designated waste, and the discharge is subject to the requirements of Title 27 for discharges of waste to land. The wastewater has salinity concentrations that exceed maximum numerical salinity limits prescribed in the Basin Plan for oilfield discharges.

The Discharger has submitted a letter of commitment to permanently cease the discharge of wastewater to the impoundments in accordance with the Compliance Schedule. The Order contains a Compliance Schedule requiring the Discharger to cease the discharge of wastewater to unlined impoundments and close the impoundments.

The action to adopt WDRs for an existing facility is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.) in accordance with Title 14, California Code of Regulations, Section 15301.

DLW:12-12-05